

# UNIVERSAL RECYCLING

## Recycling Guide for Schools (K-12)

Starting and Sustaining School Waste-Reduction, Recycling, and Composting Programs

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Union Elementary School, Montpelier

Photo: Central Vermont Solid Waste Management District (CVSWMD)

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From left to right: High school students monitoring the trash sort station, elementary school students conducting a waste audit, elementary school children separating their food waste. Photo: CVSWMD

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# INTRODUCTION

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## Recycle rē-'sī-kəl

**To make something new from (something that has been used before) / To send (bottles, used paper, food scraps) to a place where they are made into something new / To use something again / To process in order to regain material for use**

This Guide will use the term ‘recycling’ to refer specifically to what has traditionally been thought of as recycling (collection and reprocessing of plastics, metals, glass, and paper), as well as more broadly, to composting of food scraps, traditional recycling *and* to minimizing waste produced.

This **Recycling Guide** (Guide) was produced by the Vermont Agency of Natural Resources (ANR) Solid Waste Program and is designed to help schools implement a school-wide recycling and composting program. Vermont’s Universal Recycling law (Act 148), which the legislature passed unanimously in 2012, bans the disposal of recyclables and organic materials (e.g. leaf, yard, and clean wood debris, and food scraps) on a phased timeline. The law also requires that recycling containers for baseline recyclables be provided wherever trash cans are located (except restrooms) in all public buildings and land by July 1, 2015. **Under the law, providing recycling containers is mandatory at public municipal and regional schools**, and private schools are encouraged to do the same.

### Phased Universal Recycling Implementation Timeline

Material	Transfer Stations Must accept	Haulers Must offer to collect	Everyone Must recycle/compost /separate
Baseline Recyclables	July 1, 2014	July 1, 2015	July 1, 2015
Leaf & Yard Debris	July 1, 2015	July 1, 2016	July 1, 2016
Food Scraps	July 1, 2017	July 1, 2017	July 1, 2020*

\*Food scraps are banned in phases on larger generators who are within 20 miles of certified facilities as follows:

- July 1, 2014 104 tons per year (2 tons per week)
- July 1, 2015 52 tons per year (1 ton per week)
- July 1, 2016 26 tons per year (1/2 ton per week)
- July 1, 2017 18 tons per year (1/3 ton per week)
- July 1, 2020 all food scraps are banned regardless of distance

**Most schools will not need to separate food scraps until 2020, although a few may be required to in 2017.**

**“Baseline” Recyclables that must be recycled as of July 1, 2015 include:**

1. **METAL** – aluminum and steel cans, aluminum foil, and aluminum pie pans
2. **GLASS** – glass bottles and jars from food and beverages
3. **PLASTIC** – plastic containers #1 & #2
4. **PAPER** – corrugated cardboard, white and mixed paper, newspaper, magazines, paper mail, envelopes, box board, and paper bags

These are the items that are required to be recycled, but you are encouraged to recycle more—check with your commercial hauler or [Solid Waste Management Entity](#) (local municipal entity tasked with materials management and recycling) to learn what can be recycled in your area.

The Universal Recycling law gives schools and other waste generators more options than ever for recycling, food rescue, composting or anaerobic digestion, and feeding animals<sup>1</sup> with leftover food scraps. Reducing the amount of waste produced can also save your school money and lower your carbon footprint.

Schools play a critical role in educating the public. Children take the lessons and behaviors they learn in school home to their families and communities, where their energy and enthusiasm can spur real change in their communities. By implementing a recycling program, your school isn't just complying with the law, it is helping to transform communities and all of Vermont to a more sustainable way of life. Schools can be models for how to reduce, reuse, recycle, and divert valuable materials away from landfills and towards better uses.

This Guide focuses on Kindergarten through grade 12 school recycling and composting programs. It includes recommended practices that can help schools as they develop, launch, and refine recycling programs, and essential tips from Vermont schools that have implemented programs.

School recycling goes beyond recyclables and organics. Today's schools—and students—have many electronic devices that contain toxic materials, such as lead, mercury, and chromium, which are dangerous if landfilled. Electronics often also contain valuable metals such as gold. The following items are banned from disposal in landfills: **computers, printers, monitors, peripherals; TVs; personal electronics (mp3 players, etc.); telephones, cell phones, answering machines, faxes; VCRs, DVD players, converter boxes, stereo equipment; power supply cords (for charging devices); game consoles.** The Vermont Electronics Recycling Program (E-Cycles) provides free and convenient collection of many electronics. Visit the E-Cycles website [www.vtecycles.org](http://www.vtecycles.org) for more information or contact the E-cycles program toll-free at 1-855-6ECYCLE (855-632-9253).

In addition, certain **batteries, fluorescent bulbs, mercury thermostats, paint, and appliances** are also prohibited from disposal in landfills; contact your solid waste management entity for information on recycling programs such as Paintcare ([www.paintcare.org](http://www.paintcare.org)) and household hazardous waste collection events, or visit: <http://www.anr.state.vt.us/dec/wastediv/HHW/HHW.htm>.

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<sup>1</sup> Vermont state statute prohibits the feeding of food waste derived from meat, or that has been associated with meat and meat products through handling, preparation, cooking, disposal, or consumption. See Swine Feeding Policy provided by the Vermont Agency of Agriculture, Food, and Markets.

# THE BASICS

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There are many ways to begin and sustain a successful school recycling program. Programs can be implemented at individual schools, groups of schools, or even district-wide. While careful planning and diligence will help ensure success, it's important to remember that there are many resources and people available to help.

## Getting Help:

- [Solid Waste Management Entities](#) can assist schools with getting programs started.
- [Farm-to-School](#) coordinators are also great resources and have initiated recycling and composting programs, often in partnership with local farmers.
- [Master Composters](#) may be able to assist schools with composting education and training.
- **School Community:** Many schools' recycling programs have been driven by members of the school community. Parent volunteers and students are instrumental in developing the systems, infrastructure, education, signage, training, and maintenance required to launch and sustain programs. Early on in program development, you should reach out to the people that are already invested in the school and give them the opportunity to be involved.
- **Facilities staff** are the resident experts in how your school operates on a daily basis, and are critical to the success of a recycling program—seek their input and support early.
- **Nonprofits** can also assist your school. See the last page of this guide for a list of resources.

## Training, Education, & Curriculum Opportunities:

- **Hands-on training** is important for everyone, including students, faculty, and staff. We all need help understanding **what** is recyclable or compostable and **why**. Practice makes perfect!
- **Incorporate waste-reduction and recycling concepts into your curriculum.** Materials play a central role in all our lives; and science, math, and social studies classes are great opportunities to discuss human's consumption of resources in a real-world context. Making waste-reduction part of your school curriculum can increase the school's recycling rate, and also teach students about the environmental and social impacts of waste.

## Program Logistics & Launch:

- **Form an advisory committee.** Even if it is an informal group, it's important to pull together key people to work together on the details of getting your recycling program up and running, and making any improvements needed over time.
- **Decide whether you will manage food scraps and leaf and yard debris on site,** or whether they will be hauled away for off-site processing. You'll need to take different steps depending how you choose to handle food waste. These options are covered in more detail on page 7.
- **Make it routine.** The more often you model, practice, and talk about it, the more you will build a lasting culture of recycling, composting, and environmental stewardship at your school and within your community.
- **Track it!** Continually measure your progress (e.g. collecting data on trash, recycling, and wasted food) over time, and use this to make adjustments to keep improving.

- **Be creative.** The examples in this guide are not the only way to run a recycling program. By being creative, many schools have developed affordable and sustainable programs to manage the materials they generate.

**Helpful Resources:** The Universal Recycling school [webpage](#) provides information to assist your school with recycling goals including:

- Statewide List of Food Scrap Haulers
- Vermont School Recycling Scorecard
- Curriculum resources and lesson plans for schools to train and educate students
- School Case Studies
- Resource list of organizations that can help with institutional recycling programming (also provided at the back of this guide)
- Hazardous Waste and Schools Document provides information on how to carefully manage, dispose, and reduce hazardous waste.
- School composting presentation, manual, posters and signage, and training.

## SOURCE REDUCTION & FOOD FOR PEOPLE

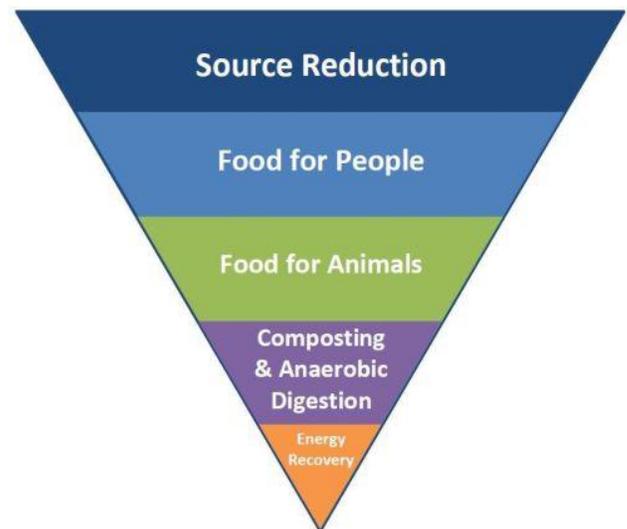
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While this Guide discusses composting as the primary option for managing excess food scraps, schools should first try to reduce the food waste they generate, called Source Reduction. The **Vermont Food Recovery Hierarchy** outlines the priority uses for organic materials, with higher levels preferred over lower levels. Schools and other waste producers should use the hierarchy to prioritize management of organic materials. If your school participates in the National School Lunch Program (NSLP)—most schools do—be sure to stay within its requirements.

**Methods of Source Reduction include:**

- **Keep production records to track what is not eaten and adjust the menu.** Production records combined with “cycle menus,” in which the same menu is offered on a set schedule such as every 4 weeks, permit very accurate estimates of the demand for different items.
- **Smaller portion sizes.** Schools can adhere to NSLP-required “meal patterns” by offering more variety in smaller portions, for instance, ¼ cup portions of several different vegetables, instead of ½ cup of just one kind of vegetable.
- **Providing a la carte meal choices** so children choose what they will actually eat. Also called “offer vs. serve,” high schools are required to offer a la carte meal choices, but younger grades can consider this option, too. Elementary schools may choose to limit options to just vegetables and fruits. Remember that layout of a la carte items influences what children choose!

### Vermont Food Recovery Hierarchy



These strategies not only reduce the amount of food that is wasted, but can also save money and improve child nutrition.

The next level on the Food Recovery Hierarchy is Food for People, which means donating surplus food to feed Vermonters in need.

**Methods of getting surplus food to those in need include:**

- **Give leftovers to kids to take home.** Many school children and their families can benefit from bringing home leftovers, through programs such as the Vermont Foodbank’s [BackPack Program](#). Contact the Vermont Foodbank to see how your school can participate.
- **Donate to a food shelf.** Unserved leftover food that can be properly stored and transported, may be able to be donated to a local food shelf. A list of local food shelves is available on the Vermont Foodbank’s website as well as the [ANR Materials Management Map](#).

Consider these and other ways your school can connect with your community to feed people in need. Contact the [Vermont Foodbank](#) to obtain information on safe handling practices for donated food. Rest easy when you give—the federal [Bill Emerson Good Samaritan Food Donation Act](#) (adopted in 1996) protects donors from liability associated with donated food.

Remaining food waste that cannot be avoided through Source Reduction, and that is not fit to be Food for People, should be directed towards the lower three levels of the hierarchy: Food for Animals, Composting & Anaerobic Digestion, and Energy Recovery. Collectively, these are referred to as “composting” within this guide, but keep in mind that they are different.

## GETTING STARTED RECYCLING AND COMPOSTING

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The following steps are suggestions for implementing an effective school recycling program including recycling and composting.

### STEP 1: Gathering Stakeholders

At the initiation of a recycling and composting program it is useful to hold a kick-off meeting of key stakeholders (such as the administration, business manager, supportive faculty, cafeteria and custodial staff, student environmental groups, parent volunteers, etc.) to discuss options, share various perspectives, concerns, and create buy-in. This will improve the program design and help with ongoing maintenance.

A kick-off meeting is also an opportunity to identify participants for a recycling and composting team (EcoTeam) or committee that will take charge of specific tasks. The EcoTeam can create an action plan, coordinate the work, ensure all stakeholders are committed, measure and regularly update others on progress, and troubleshoot issues that may arise.

**Suggested Topics for Stakeholder Meeting:**

1. Overview of Vermont’s Universal Recycling law (Act 148).
2. What waste and recycling management systems are currently in place at the school? What does or does not work well? Include a discussion of current waste and recycling service costs.
3. What services may be needed?

**Tip: Pitch a big tent.**

Schools that have implemented recycling and composting programs say that buy-in from all stakeholders is a critical factor to success. Involving many groups builds a better, more lasting system.

- a. Does the school currently recycle materials beyond cardboard and paper? Does the current hauler collect baseline recyclables?<sup>2</sup>
  - b. Does the hauler collect food scraps?<sup>3</sup> If not, are there other haulers that do?
  - c. Appoint someone to evaluate cost of these services in relation to cost savings estimated on trash.
4. Where are recycling bins and composting containers needed? How frequently will they be emptied?
  5. How will training about what is recyclable and compostable be provided to students, faculty, and staff? Suggested training settings include:
    - a. School assemblies;
    - b. In class trainings. It doesn't just have to be science class—teachers of any subject may want to incorporate training into their classes;
    - c. Trainings done by older students to younger grades, as well as to faculty and staff.
  6. Are there on-site composting options? (see the “On-site Composting” section below)
  7. Consider conducting a Waste Assessment (see the Waste Assessment section below).
  8. Set initial goals for the month and year.
  9. Delegate responsibilities for moving forward with a recycling program and schedule recurring check-in meetings.

#### Recommendations for EcoTeams:

- Student-run environmental clubs (EcoTeams) can play a big role in recycling and composting programs, including planning, organizing, fundraising, implementing, training, and troubleshooting. They are most effective when they have support and guidance from teachers, staff, parents, and the school administration.
- Every EcoTeam should have at least one person familiar with the school or school district’s operations (e.g. food service or facilities manager, principal/superintendent, teacher) and should choose one person to be the Coordinator.
- Teams should meet regularly.
- Teams should seek assistance and support from affiliated groups like Farm-To-School Coordinators and Solid Waste Management.
- Team members can take on formal roles, like Communications Coordinator, Data Manager, and Lead Cafeteria Monitor.
- Teams should work with stakeholders to identify an initial course of action, but remember that programs can always be changed and adapted to fit your school’s specific needs and challenges.

#### **Tip: Start small.**

If you encounter skepticism, try starting with a pilot project to test a recycling and composting system. This allows for adjustments to address concerns and build confidence that recycling and composting can be done.

## STEP 2: Waste Assessment

Collecting data on your school’s waste will establish valuable baseline information and allow you to track progress. It is best to gather this information before changing or implementing new programs.

<sup>2</sup> Haulers of trash are required to offer collection services for “baseline” recyclables to all customers by July 1, 2015.

<sup>3</sup> Haulers of trash are required to offer collection services for food scraps to all customers by July 1, 2017. Check the Statewide List of Food Scrap Haulers [here](#) for listings of haulers within your region.

### Important data to collect:

- Amount of trash your school produces on a weekly or monthly basis. Also collect information on recycling and composting, if those materials are being separated already;
- Number of containers for trash and recycling available to students, faculty, and staff throughout the building and grounds; and
- Amount and quality of labeling and signage associated with recycling and composting containers. Taking photos of existing setups is a great way to capture this information.
- Collection costs for current services;

Tracking the costs of the “old” system allows a school to determine any cost savings on trash hauling and disposal that result from their recycling and composting efforts. Some schools have used cost savings on trash hauling and disposal to purchase durable utensils and plates, further reducing waste by decreasing or even eliminating disposables. Your solid waste hauler, the school’s facility director, or a business manager can often provide this information. It could also be part of a class project.

**Hold a Trash Separation Day** to see just how much recyclable or compostable materials are being thrown out. During a trash separation day event students empty and sort through the school’s trash (but not from restrooms) on a large tarp outside or in the gym. Students separate out recyclable items, and food scraps to determine how much of the school’s current waste stream could be recycled or composted. This is generally the most accurate way to obtain baseline data on the amount and type of waste generated, which can help guide planning and implementation. This is also a great way to kick-off a recycling program and to motivate students, faculty and staff to do a better job of separating recyclables, composting, and reducing waste. Some solid waste districts and nonprofits provide assistance with school trash separation events.

### STEP 3: Making a Plan

Once you know more about how your school manages its waste, the services you have or need, and your current waste and recycling rates, it’s time to make your recycling plan.

1. **Set goals.** Create goals for the short term and first year. Consider creating a three year plan with more ambitious and longer-term goals.
2. **Create an action plan** for how you’ll attain the goals. A phased approach over several months or years is fine.
  - a. **Tackle the low-hanging fruit first.** If recycling systems are not in place or need help, work on that first, then move to composting. The Universal Recycling law requires recycling containers be placed next to every trash container throughout the school (except for restrooms) by July 1, 2015.
  - b. **Choose a collection system, such as a cafeteria sort station.** A sort station allows students to separate recyclables and food scraps from trash. More information on collection systems follows in Step 4.

#### Tip: Talk to the community.

Many schools are surprised by how much help they receive just by asking their community (parents, businesses, community groups). For example, someone might know of a farmer looking for food scraps, or someone might have a table they can donate for use as a sort station. Parents are often eager to get involved, and even volunteer in the cafeteria to help monitor the sorting station.

- c. **Decide whether you'll be managing food scraps on-site or off-site.** See the On-site vs. Off-site Composting section below to help guide your decision.
3. **Seek further guidance** from haulers, farmers, and composters to understand acceptable materials, pickup schedules and procedures, and how they can help with issues.
4. **Establish a method and a person or group who will track progress** towards your goals.
5. **Delegate responsibilities** for moving forward. Every action item in your plan should be delegated to someone to make sure it is completed.
6. **Revisit the plan** after implementation, to assess its effectiveness and make any needed adjustments.



## STEP 4: Infrastructure - Establishing Collection Systems

Collection systems should be in place before you start recycling and composting. Begin by identifying areas where containers will need to be placed, removed, or consolidated, including outdoor areas. This will help you determine signage and container needs. However you choose to collect recyclables, compostable material, and trash, you should incorporate Vermont's [standardized recycling symbols](#) into your container labels, signage, and posters. The symbols can be downloaded for free, and stickers for bins can be ordered from the State of Vermont print shop program. Ask your Solid Waste Management Entity or hauler for information explaining what is recyclable and compostable.

**Recycling:** By law, your school must provide a recycling container wherever there is a trash can (except for bathrooms). Consider removing extra trash cans that are not in use, and possibly converting them to recycling bins. Make sure each recycling and trash container is clearly and obviously labeled for its intended use. Sometimes it's hard to remember what is recyclable, or how to prevent contamination; posting signs with pictures of sample items can help. See the section on training and education below.



Cafeteria sort station at Union Elementary School  
Photo: CVSWMD

**Cafeteria Sort Stations:** Many schools set up a sort station in the cafeteria where students, faculty, and staff can easily and conveniently separate recycling, compostable materials, and trash into buckets or bins. Here are some suggestions for sort station design:

- **Include cafeteria and custodial staff** in planning and design to ensure they can accommodate the new system.
- **Place sort stations where they will be used.** Place stations in such a way that naturally directs people to

### Tip: Build your own sort station

Enlist the help of parents and students to build a sort station that works for your school. Building out of recycled materials is even better.

use them. Use one or two stations, but not more—this helps streamline and ensure proper separation. Sort stations that permit access to bins from both sides can minimize bottlenecks.

- **Minimize other options.** Remove excess trash bins from around the cafeteria to bring students, staff and faculty to the sort station.
- **Proper station height.** For younger children, make sure the sort station or bins are at a low height so they can easily reach and see into the bins. Being able to look into the bins or buckets aids proper sorting.
- **Provide a working surface.** The station should have a place where students can place their tray as they are sorting through their recycling, compost, and trash. A table or counter works well.
- **Trash is last.** Some schools prefer to put recycling bins first, followed by compost; other schools lead with compost followed by recycling. Whichever you prefer, make sure to put trash last—this encourages students to recycle and compost rather than simply dumping everything in the trash.
- **Use monitors to ensure proper sorting and reduce contamination of food scraps.** Students, EcoTeam members, staff, or parent volunteers make great monitors. Make sure they are trained on what is recyclable and compostable. Providing monitors with aprons, gloves, tongs, and large rubber spatulas allows them to help students separate materials fast and efficiently.
- **Buckets work great for food scraps.** The diameter of most 5-gallon buckets conveniently fits the width of most school trays, allowing users to insert and tap their trays into the bucket to remove stuck on and leftover food. 5-gallon buckets also typically fit into most industrial dishwashers, making them easy to clean. Student volunteers can dump and clean the buckets, with adult guidance.
- **Garden carts make transporting full buckets easy.** Food scraps can be heavy. Garden carts with 5-gallon buckets are often used to transport classroom and cafeteria food scraps to compost carts outside. They can also be used for recyclables.



### Tip: Stick 'em up!

Stickers on fruit and veggies are often plastic and are a major problem for composters. Giving students a poster where they can stick these stickers helps encourage their removal.

### Tip: Sort stations save silverware.

Many schools switched from durable silverware to disposable plastic utensils because students were accidentally throwing silverware in the trash. After launching a recycling program and installing a sort station in the cafeteria, schools are finding they lose far fewer durable utensils because students are actively sorting what is on their trays.

### Compostable or Disposable?

#### Neither—Go Durable!

As you look at your new recycling and composting program, take a closer look at the disposable items used in your school, particularly the cafeteria. Styrofoam trays, cups, bowls, and plates are not recyclable or compostable and cause problems for commercial composters when they break into pieces. Some schools have purchased certified compostable products as an alternative to Styrofoam or plastic. While these

items might be technically compostable, only a few commercial composters currently accept them. Contact your Solid Waste Management Entity, hauler, or local composter for information on what

compostable products they accept. Reducing or even eliminating disposables by switching to durable ware can save money and reduce waste. They also help ensure food scraps are free of contaminants.

### Reduce disposables in the cafeteria:

- **Eliminate straws** or restrict their use (money saved can cost be used to purchase durable utensils).
- **Use brown paper napkins** that your composter will accept.
- **Use bulk condiments** such as ketchup pumps or single serving paper-based compostable cups whenever possible.
- **Offer buffet items** that allow students to choose what they would like to eat.
- **Hold a community silverware drive** at town meeting day or another other public event. If community members bring in a few spare forks and spoons from their households, a school can collect a lot of cutlery!
- **Use magnetized trash can lids** to prevent metal utensils from being lost.

### Tip: Create new habits.

“Students come with habits. The quality and rate of separation may start out low when you add a program because it takes time to learn a new behavior and develop new habits. Provide initial and follow up training as needed and allow time for the learning curve.”

- CSWD Youth Outreach  
Coordinator

**Composting In the Classroom:** Students, especially elementary age, benefit from consistency. If they are able to compost during lunch in the cafeteria, they will also want to compost snack and breakfast food scraps in the classroom. Many schools utilize small buckets with fitted lids in each classroom for snack, breakfast, and lunch food scraps. The buckets are emptied daily by student volunteers and washed in the cafeteria dishwasher. The teacher’s lounge should also have containers to capture food scraps as well as coffee grounds.

## STEP 5: Training, Educating, and Launching Program

Schools that regularly train students, faculty, and staff have good success with their programs. There is much less confusion about what is recyclable and compostable, resulting in less trash contamination in recycling and compost containers.

**Why training?** It sounds simple, but everyone could use a better understanding of “how” to recycle and compost. For example, did you know that clean aluminum foil and plastics #1-7 are recyclable in most areas of Vermont? Or that most commercial composters accept meat, bones, and even shellfish shells? Begin each training with basics, like *what* items can be recycled and composted and *how* these systems are managed in your school. This provides useful information and gives everyone the opportunity to ask questions. Training on “how” to properly recycle and compost should be age-appropriate. For example, elementary students, especially K-2<sup>nd</sup> or even 3<sup>rd</sup> grades like to practice separating.

**Sample activity:** After explaining what the school will be doing (e.g. recycling and composting in the cafeteria), bring out three containers marked recycling, compost, and trash, and give each student in the class a material: clean recyclable item, toy food item, or clean trash item (styrofoam, non-recyclable milk cartons, chip bags, etc.). Have students line up and walk through the sort station telling their classmates what they have and where it goes. Kids love this activity! For middle and high school students, peer-to-peer learning is very effective. Have student leaders in an environmental action club teach workshops in classes to educate their peers.

**Why recycling and composting matter:** Talk to students and staff about the importance of sustainability and minimizing waste. Nearly a third of the food grown in the U.S. is thrown away. About half of what Vermonters throw out could be recycled or composted. Recycling and composting combat climate change by reducing greenhouse gas emissions and the amount of water needed to grow our food. Vermont has only one landfill left, in the town of Coventry, and we are all contributing to filling it up when we throw things away. Ask students to think of more reasons (there are many!) why it's important to recycle, compost, and reduce waste.

## Climate connection:

A study conducted by the Alliance for Climate Action in affiliation with the Highfields Center for Composting and CVSWMD, found that composting a 5-gallon bucket of food scraps prevents greenhouse gas emissions equal to burning a gallon of gas.



Students learning how to sort their waste.

Photo: Sustainable Schools Project.

**Training Logistics:** Trainings tend to be most effective at communicating the message when conducted in smaller groups. Conduct trainings class-by-class or in assemblies by grade. This is a good opportunity for older students to train and mentor younger students. Fifth and sixth graders in groups of 2-4 have provided trainings to K-5<sup>th</sup> grade classes. Older students also make great monitors for cafeteria sort stations.

Whatever trainings you plan, be creative and work with teachers to incorporate recycling into lesson plans. Visit ANR's [School Universal Recycling webpage](#) for lesson plans and additional resources.

### Recommendations for Program Launch:

- Notify the whole school, district, and surrounding community about the program before it starts.
- Advertise the start date and goals through a press release to showcase your school's program.
- Publicize the program during morning announcements, at staff meetings, and at PTO meetings.
- Hold a special assembly or presentation to kick-off the program.
- Display messages around the school (such as on chalkboards or on sidewalks/playgrounds with chalk). Hang educational posters in the cafeteria, hallways, and classrooms.
- Hold additional meetings and trainings for food service and maintenance staff as necessary, to cover how their job duties may change.
- Send e-mails, letters, or flyers home to inform parents and guardians of the program.

## STEP 6: Program Management & Sustainability

Maintaining a school recycling program often requires a champion or team that continually tracks and evaluates progress, keeps up with training and education at all levels (to new students and staff), ensures that program goals are continually met, and troubleshoots issues that may arise.

### Tip: Involve students!

Giving students an opportunity to participate and help run your waste-reduction program gives them a sense of empowerment and addresses a key program barrier — staff time to manage recycling and composting. Students make great trainers, monitors, and collectors of containers. There will likely be more than enough students willing to help.

**Check-in:** After your program is launched and had time to operate for a few months, reconvene the initial stakeholder committee or team to discuss what is working, gather feedback, and make adjustments to the program. Explore potential cost savings on trash hauling and disposal, which is detailed in the next section. If you began on a small scale and things are going well, consider expanding the program: such as to collect food scraps from in classrooms, address other items in the waste stream, or even developing an annual locker clean-out-reuse event.

### Sustaining your recycling program:

- **Make the program part of the curriculum.** Create class projects and experiments around the program. Conduct field trips to the landfill, local transfer station, recycling material recovery facilities, farms, or composters. Utilize home style compost bins as demonstration projects that complement a school garden system.
- **Plan for continual trainings** to new and returning students and faculty at the beginning of each year.
- **Track and report** on the success of the program (tons recycled, pounds composted, etc.) annually through school newsletters, announcements, and trainings.
- **Celebrate success!** Hold an ice cream party celebration to reward the school for their recycling efforts. Invite you local Solid Waste Management Entity, the composter, and the hauling company to report out on the school's progress in helping to mitigate climate change, save resources from the landfill, and help feed people and animals, create fertile soil to grow more food, and make new things.

### Tip: It gets easier.

As waste-reduction becomes part of your school's culture, minor tasks become second nature. People who were initially opposed to the program often become supportive after seeing it work.

## ESTIMATING FOOD SCRAP GENERATION

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ANR uses specific calculations to estimate the amount of food scraps produced by different businesses and institutions. The calculations used for schools are based on data collected over several years by the Central Vermont Solid Waste Management District. Estimating the amount of food scraps generated at your school will help you make better informed decisions about management options (such as on-site composting or off-site hauling), and how your school may find savings on trash hauling costs after implementing a composting program.

Equation for calculating tons of food scraps per week in schools:

$$\left( \frac{\text{\# of students} \times \text{lbs. per student per week}}{2,000 \text{ pounds}} \right) = \text{tons of food scraps per week}$$

Estimated food scraps generated by each student each week:

Grade level	Food scraps generated (lbs./student/week)
Elementary & Pre-schools	1.13
Elementary/Middle Schools	0.93
Middle Schools	0.73
High Schools	0.35
K-12 Schools	0.72

**Materials Management Map:** ANR has already estimated food scrap generation rates for all schools in Vermont. To find your school visit the [Materials Management Map](#) and search for your town. Clicking on your school will open up an information box that shows the estimated tons of food scraps your school might produce each week. Keep in mind these are only estimates.

**Weight:** To convert pounds into gallons (a common unit used for containers), ANR estimates that food scraps weigh **approximately 4.6 pounds per gallon**. The most common collection containers for food scraps are wheeled carts. Wheeled cart sizes for food scraps are typically 32-gallon, 48-gallon, or 64-gallon. Based on 4.6 pounds per gallon, an average 48-gallon container of food scraps will weigh approximately 220 pounds. A 5-gallon bucket from a sort station will average about 23 pounds.

## SAVING MONEY ON TRASH

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Feeding food scraps to hungry chickens.

Photo: CVSWMD

Two of the most common barriers to recycling in schools are staff time and cost. As of July 1, 2015, all commercial haulers that collect trash must collect baseline recyclables from all customers, or subcontract with another hauler to provide this service. Most solid waste haulers offer recycling collection at lower rates than trash. By July 1, 2017, solid waste haulers that collect trash are required to offer collection of food scraps, or subcontract with another hauler to provide this service. A list of haulers that offer food scrap collection services can be found on the Universal Recycling web pages [here](#). To find nearby composters and transfer stations that accept food scraps and other materials, visit the [Materials Management Map](#).

**How are trash costs determined?** Chances are, your school has its trash picked up by a commercial hauler, who incurs costs for fuel, personnel, tipping fees, vehicles, containers, equipment, maintenance, insurance, billing and administrative staff, and more to provide this service. Tipping fees are typically charged per ton, based on the weight of the hauler’s truck when it enters the facility. Note that haulers are also frequently charged tipping fees for recyclables and food scraps at recycling and composting facilities. In general, the majority of the cost any customer pays for the collection of any material whether it is trash, recyclables, or food scraps, is for hauling of it from the customer to the facility where it is managed. Tipping fees generally make up a smaller proportion of a customer’s bill.

Haulers typically cover these costs by charging customers a collection fee every time they pick up the contents of your dumpsters. Often collection fees are based on the volume of the dumpster (8, 10, or 12 cubic yards, etc.) and the frequency of collection (1x or 2x/week). By increasing recycling and removing food scraps from your trash, your school will have less trash, which often means fewer trips, tonnage, and “tips” for the hauler. This presents a potential trash cost savings opportunity for your school.

**Common ways to save costs:**

1. **Reduce trash collection frequency.** Food scraps are the smelliest—and often the heaviest—part of the waste stream. By removing food scraps you may reduce trash pick ups.
2. **Reduce the number or size of your trash dumpsters.**
3. Renegotiate the trash contract based on reduced weight and collection frequency.
4. Renegotiate the trash contract based on consolidation of services (e.g. trash, recycling, and food scrap collection services) with an aggregated price.

**Tip: Renegotiate.**

Schools that renegotiate their trash hauling contract based on diversion of food scraps and recycling often can find some cost savings on trash costs. If your recycling and composting efforts save your hauler money, it should also save you money.

Review your school’s solid waste hauler contract and bills with your school’s business manager. Get quotes from haulers for full recycling (beyond cardboard and paper) and food scrap collection services. Tracking the volume of food scraps the school produces on a monthly basis will provide you with good information for renegotiating a trash contract. The heavy, wet food scraps weight that is removed from the trash will save your hauler money in tipping fees they pay to the landfill or transfer station.

To reduce costs further, compost food scraps on-site or send them to a local farmer for animal feed. Make sure the farmer can accept food scraps on a routine basis and that they follow [Agency of Agriculture requirements](#) on feeding food scraps to pigs. Chickens may be fed all food, including meat.

## ON-SITE vs. OFF-SITE COMPOSTING

While recyclables need to be hauled away for processing, organic materials such as food scraps and leaf and yard debris can sometimes be successfully composted onsite.



**Potential options for managing food scraps and other organics:**

- Commercial hauler collects and transports all organic material to a commercial composter, animal feed operation, or certified solid waste anaerobic digester.

- Local farmer collects food scraps for animal feed and/or compost.
- School composts its food scraps and organic materials on-site, managing as a compost center or part of a school garden program.
- School composts some of its food scraps on-site for a school garden/compost demonstration program, but most organic material is hauled off-site.

**Composting off-site**, where a commercial hauler or farmer collects and removes organic materials, is the fastest and easiest way for your school to separate food waste and other organic materials away from the landfill. While there are typically charges for this service, it is convenient.

### Tip: Use the School Compost Manual

These are just the composting basics. For a detailed, step-by-step guide to composting, as well as signage, posters, and other technical assistance, visit the ANR website at <http://www.anr.state.vt.us/dec/wastediv/solid/Act148.htm>

**Composting on-site** saves money, is a good learning tool for students, and provides a source of compost for school gardens or landscaping. Before beginning an on-site composting program it is recommended that all schools contact the ANR Solid Waste Program at 802-828-1138.

On-site composting requires some planning, regular management, and an initial investment. To properly compost on-site you will need a container system that holds compost material, deters animals, provides some amount of passive aeration, helps control moisture, and retains heat. You will also need to ensure you have a regular supply of carbon feedstocks for your compost that maintains a carbon to nitrogen ratio of

about 30:1. Carbon materials are typically “browns” such as dry leaves, sawdust, wood chips, sticks, and shredded paper. Nitrogen materials typically include the “greens,” such as food scraps, coffee grounds, manures, and green grass clippings. Since all of these materials contain some amount of carbon and nitrogen an easy rule of thumb is 3 parts browns to every 1 part greens. What you put into your compost doesn’t have to exactly follow this ratio, but a proper compost recipe will help ensure speedy decomposition and minimize odors.

Larger schools producing 100 cubic yards of compost per year must register with the state and comply with the solid waste rules and requirements for proper siting and compost operation. Generally, a school that generates less than 0.75 cubic yards per week for the nine month school year will be under the 100 cubic yard threshold and would be exempt from registering.

### On-site or Off-site?

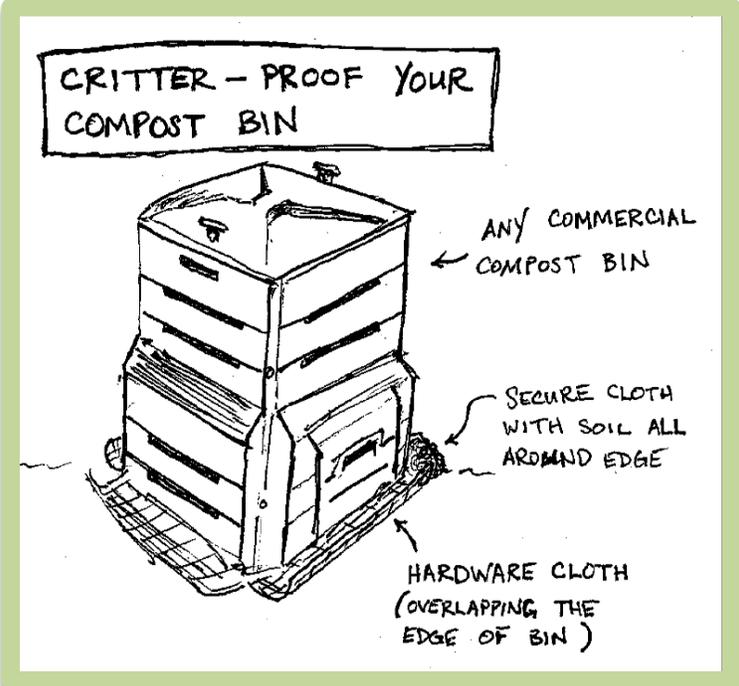
	On-site*	Off-site
<b>Advantages</b>	Saves money over the long term Source of compost for school gardens Educational opportunities	Convenient and easy to manage Few issues with odors/animals Easier to keep up over time Supports local businesses
<b>Disadvantages</b>	Requires animal-proof bins or buildings Requires regular management and labor Requires carbon “brown” materials Must comply with state regulations if >100yd <sup>3</sup> per year of organics are composted	Incurs hauling costs Haulers may collect only some materials, or reject food scraps contaminated with other materials.

\*We recommend contacting the ANR Solid Waste Program at 802-828-1138 before beginning on-site composting.

You will also need to regularly manage the compost, including sourcing carbon feedstocks, blending and mixing materials, turning piles to aerate the compost, and emptying bins when the compost is finished. Schools choosing on-site composting to manage their food scraps often welcome the opportunity to tie it to Farm-to-School efforts and make connections to the food system. Schools that are most successful with on-site composting build durable, insulated, and animal-proof bins, often inside a composting shed. Compost sheds allow schools to store carbon materials, such as wood chips, leaves, shredded office paper, and sawdust, out of the rain and snow. These feedstocks are blended daily with food scraps from the cafeteria to maintain a good mixture of carbon and nitrogen, which helps minimize odors and encourages compost bacterial activity.

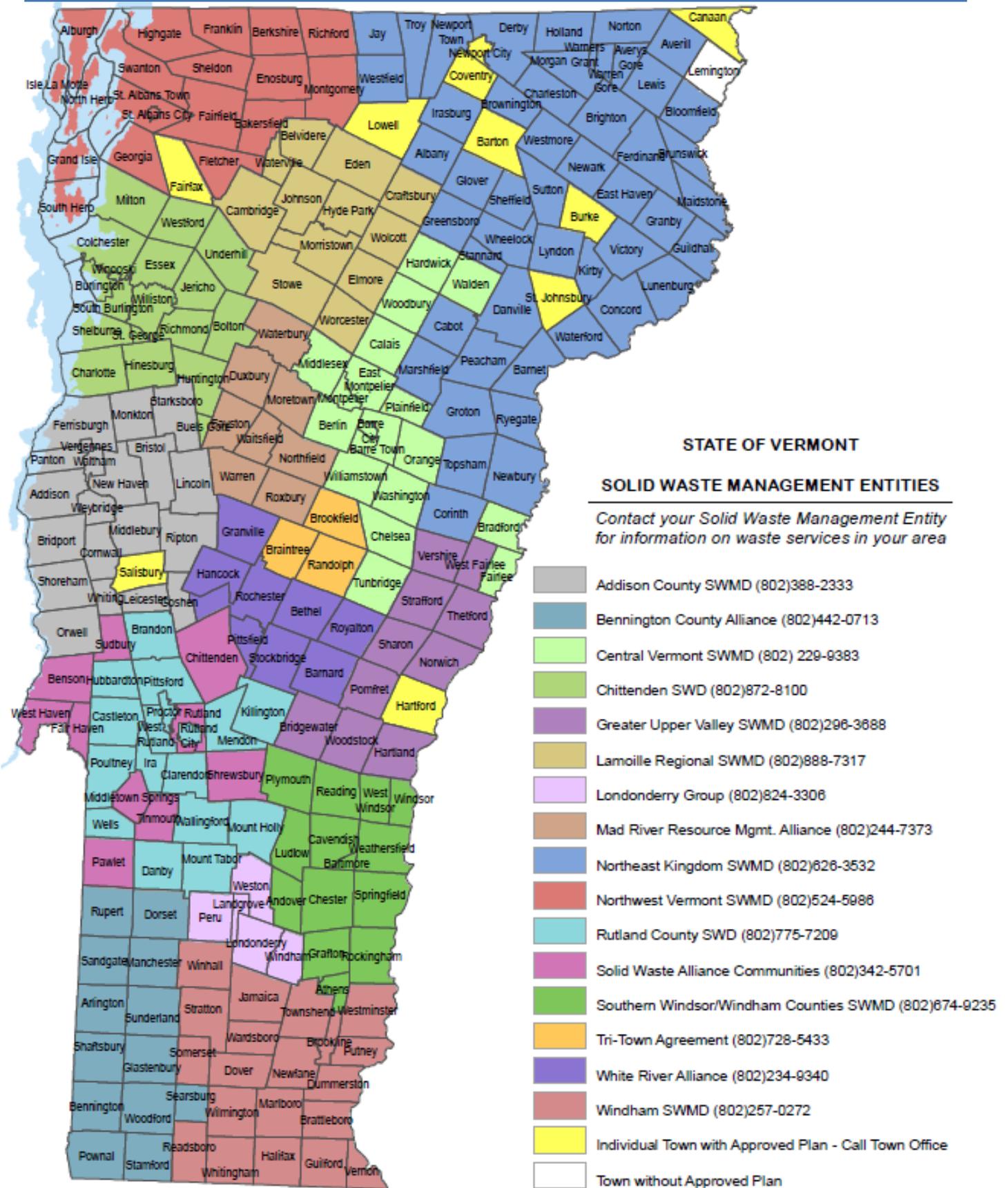


Ferrisburgh Central School’s compost shed (left), with insulated bins, and Charlotte Central School’s compost shed (right), under construction. Photo: Ferrisburgh Central /Charlotte Central Schools



Whether your compost operation is large or small, simple steps can help keep it free of unwanted visitors.

# SOLID WASTE MANAGEMENT ENTITIES MAP



# SCHOOL RECYCLING SCORECARD

Fill out the scorecard to determine your school's score and identify areas needing improvement.

Vermont School Recycling Scorecard		Points	1 or 2 points for each "yes" answer, 0 points for "no" answers
Vermont Agency of Natural Resources, Solid Waste Program			
Main Office, Halls, Common Area, Teachers' Lounge, etc.	Each trash can has an equal- or larger-sized recycling bin next to it. <i>(Recycling containers adjacent to trash receptacles is required in all public buildings &amp; spaces except restrooms July 1, 2015)</i>	2	
	Listed recyclables (metal, glass, plastics #1 & #2, and paper/cardboard) are separated and collected school-wide. <i>(Listed recyclables are banned from disposal July 1, 2015)</i>	2	
	Additional items such as plastics #3-7 are separated and collected for recycling.	1	
	Faculty/staff have a separately-labeled container for food scraps in the faculty lounge emptied daily. <i>(Food scraps are banned from disposal July 1, 2020)</i>	1	
	The school purchases and uses paper products with recycled content.	1	
	The school has an environmentally preferred purchasing policy.	1	
	The office reuses envelopes for school or inter-office mailings.	1	
	The school has a plan to limit hazardous waste, and has reduced its use.	1	
	Hazardous waste in the school is located in fewer than 2 storage areas.	1	
	An inventory is kept of all hazardous waste products in storage areas.	1	
Cafeteria	Cafeteria staff recycle in the kitchen.	1	
	Cafeteria staff separate food scraps for composting in the kitchen.	1	
	There is a sort station with clearly labeled recycling, compost, and trash containers. The height is appropriate for students.	2	
	There are sort station monitor(s) helping students separate their waste (student or adult). (Are they trained or recognized by the school?)	1	
	There is a system to rinse recyclables.	1	
	There are posters in the cafeteria that remind students to take only what they can eat, to recycle, and to compost.	1	
	Cafeteria staff monitor what students eat and don't eat, and adjust menus to minimize waste	1	
	The cafeteria primarily uses durable goods for food service, such as reusable trays, bowls, cups, and flatware.	2	
	The cafeteria uses compostable napkins.	1	
	The cafeteria provides a milk dispenser instead of individual milk containers.	1	
The cafeteria uses bulk condiments instead of single-use packages.	1		
Classroom	Each trash can has an equal- or larger-sized recycling bin next to it.	2	
	Each classroom has a labeled compost bucket for students and staff to compost snack scraps.	2	
	Educational posters in the classroom remind students to reduce, reuse, recycle, and compost.	1	
	Students are encouraged to use both sides of paper and to print double-sided.	1	
	Teachers and staff are encouraged to use both sides of paper and to print double-sided.	1	
	Waste reduction data (amount of trash, recycling, and/or food waste) is tracked over time.	1	
	The school promotes a zero waste philosophy when lockers or classrooms are cleaned out at the end of the school year. <i>(Ex. holding a locker clean-out day.)</i>	1	
	Faculty, lab assistants, and facility staff are aware of hazardous chemicals in lab classrooms and use safe handling and storage	1	
Custodial/Facilities	Facility staff have a program for handling and disposal of hazardous materials, including cleaners and fluorescent bulbs, in a safe and environmentally-friendly manner.	2	
	Facility staff have a spill protocol for hazardous chemicals.	1	
	Facility staff use reusable cleaning supplies. <i>(Ex. micro-fiber mops and cleaning cloths.)</i>	1	
	Facility staff use non-toxic, environmentally-friendly cleaning products.	1	
Educational Programs	Students are instructed on how to recycle and compost and are regularly reminded.	2	
	Lessons on waste reduction, recycling, & composting are incorporated into school curriculum.	2	
	The school has conducted a waste audit to assess its contribution to the waste stream.	1	
	There is a "green team" or student environmental club at school.	1	
	Compost is used in a school garden, or there is a compost demonstration bin at school.	1	
	Teachers are trained on how to handle hazardous waste.	1	
		<b>SCORE:</b>	

### Highest Possible Score: 48 Points

Super sustainable school! Keep it up!	35 and above
Good job, but there is still room to improve.	25-34
School does not demonstrate much sustainability effort beyond recycling.	13-24
Limited sustainability effort demonstrated. It's time to GO GREEN!	0-12

Adapted with permission from scorecards created by the Central Vermont Solid Waste Management District and Chittenden Solid Waste District.